



Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Brush Creek

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#### Water Body Segment at a Glance:

**County:** Polk  
**Nearby Cities:** Humansville, Collins  
**Length of impairment:** 0.2 mile  
**Pollutants:** Biochemical Oxygen Demand (BOD) and Volatile Suspended Solids (VSS)  
**Source:** Humansville Wastewater Treatment Facility



State map showing location of watershed

**TMDL Priority Ranking:** High

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#### Description of the Problem

##### Beneficial uses of Brush Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

##### Use that is impaired

- Protection of Warm Water Aquatic Life

##### Standards that apply

- The Missouri Water Quality Standard (WQS), found in 10 CSR 20-7.031 Table A, for dissolved oxygen (related to Biochemical Oxygen Demand, or BOD) in streams is 5.0 mg/L (milligrams per liter) or the natural dissolved oxygen profile of the stream, whichever is less.
- The standards for Volatile Suspended Solids (VSS) may be found in the general criteria section of the WQS at 10 CSR 20-7.031(3)(A) and (C). Here it states:
  - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.

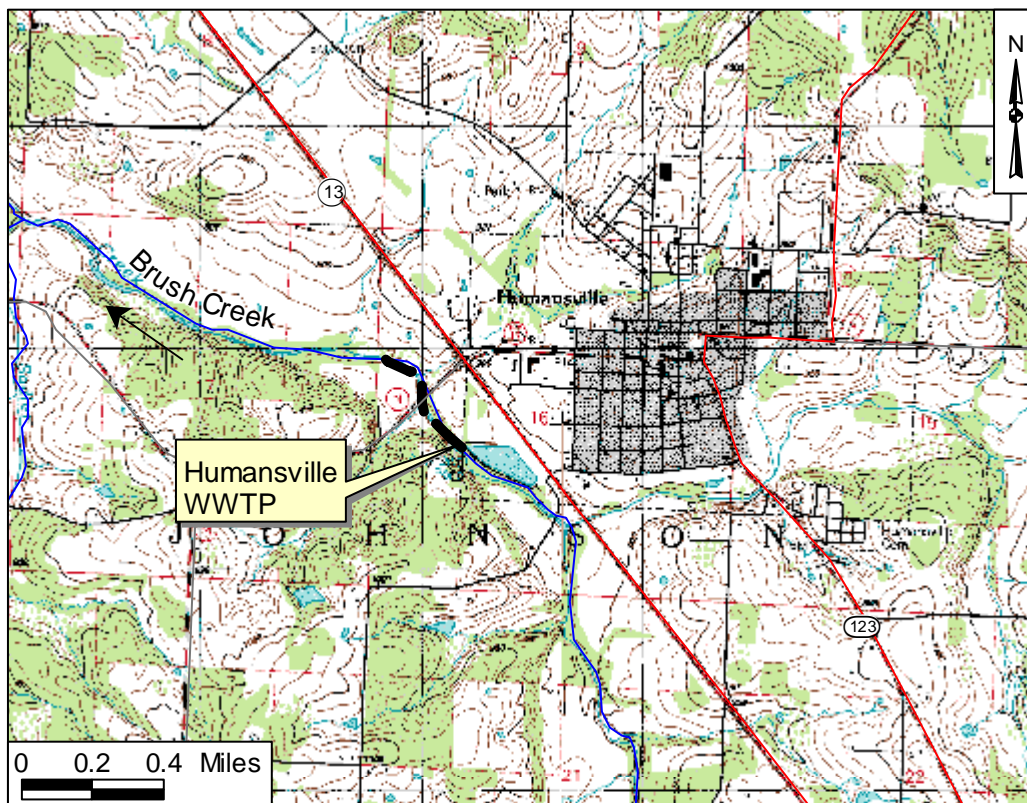
#### Background information

The Department of Natural Resources has monitored Brush Creek on several occasions. In the last few years, the Humansville Wastewater Treatment Facility (WWTF) has had chronic problems with

inadequate treatment of wastewater. In 1995, monitoring documented low dissolved oxygen levels and impairment to the aquatic benthic invertebrate (bottom-dwelling creatures) community of the stream due to discharge. Invertebrate surveys in 1999 and 2003 also indicated some impairment of the benthic invertebrate community downstream of the discharge.

Wastewater high in BOD reduces the amount of dissolved oxygen in the stream's water. Most aquatic organisms require high levels of oxygen to survive. In addition, Volatile Suspended Solids, (suspended algae and sewage sludge) can settle onto the bottom of a stream and smother natural substrates (materials in the streambed), aquatic invertebrate animals (like crayfish and water insects) and fish eggs. Like all wastewater discharges in Missouri, the Humansville WWTF has to meet the requirements of a discharge permit issued by the department. Humansville is currently (2004) upgrading its wastewater treatment facilities. The upgrade with new permit limits should result in improved water quality in Brush Creek. If future studies show that the stream is still not meeting water quality standards, the discharge permit will be amended.

### **Brush Creek in Polk County, Missouri, Showing the Impaired Segment**



— — — — — Impaired segment

← Direction of flow

#### **For more information call or write:**

Missouri Department of Natural Resources, Water Protection Program

P.O. Box 176, Jefferson City, MO 65102-0176

1-800-361-4827 or (573) 751-1300 office

(573) 522-9920 fax

Program Home Page: [www.dnr.mo.gov/env/wpp/index.html](http://www.dnr.mo.gov/env/wpp/index.html)